



CLASSIFICATION OF FIRE RESISTANCE PERFORMANCE IN ACCORDANCE WITH NEN-EN 13501-2: 2004

Sponsor:	Xella Droogbouw Systemen BV P.O. Box 398 6600 AJ WIJCHEN The Netherlands
Prepared by:	Centre for Fire Research Van Mourik Broekmanweg 6 P.O. Box 49 2600 AA Delft
Notified Body No:	1234
Product name:	1S21 metal-stud wall
Classification report No.:	2006-CVB-R0195
Projectno:	034.67901/01.01
Issue number:	1
Date of issue:	March 2006

This classification report consists of 5 pages and may only be used in its entirety.

1. Introduction

This classification report defines the classification assigned to **1S21** metal-stud wall in accordance with the procedures given in NEN-EN 13501-2:2004

2. Details of classified product

2.1 General

The product, **1S21** metal-stud wall, is defined as a non-load bearing metal-stud wall construction.

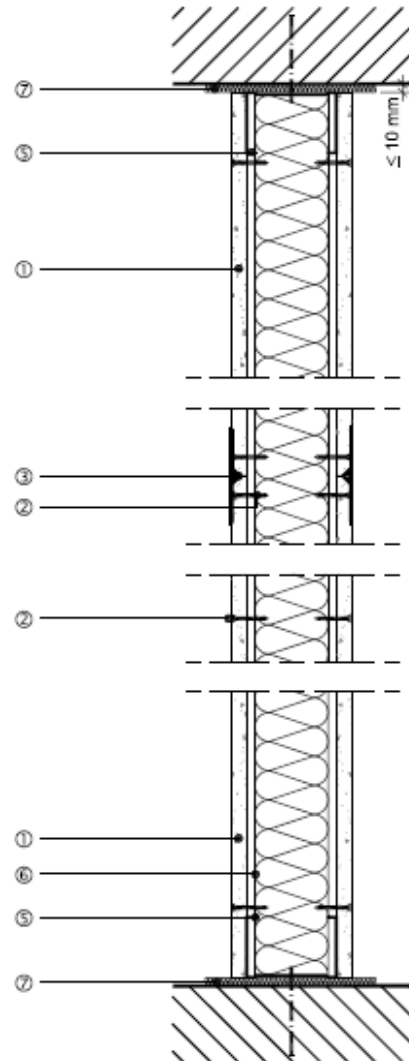
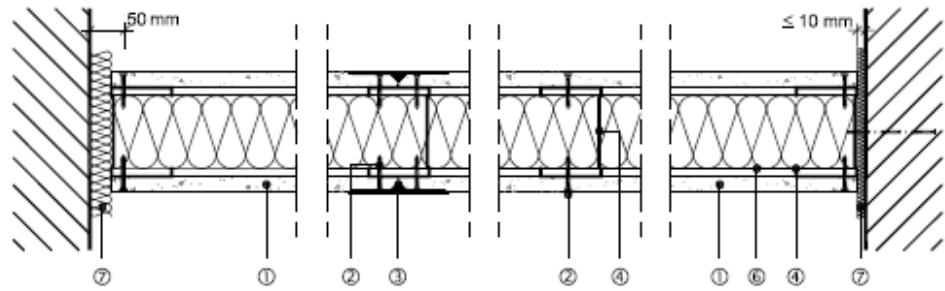
2.2 Product description

The product, **1S21** metal-stud wall, is fully described in the test report listed in Clause 3.1. Below is a summarized description of the product.

Product description:

- Dingemans U-stud 75-06, as bottom and ceiling rail, dimensions 78 x 45 x 0.6 mm;
- Dingemans C-stud 75-06, as mullions, dimensions 75 x 50 x 0.6 mm;
- C-studs were filled with mineral wool plates (Rockwool 204 (Dutch type number)), dimensions 1200 x 600 x 60 mm;
- C-studs covered with Fermacell gypsum fiber boards, thickness 12.5 mm;
- Vertical and horizontal joints between Fermacell gypsum fiber boards were covered with a synthetic wire mesh and then filled with mortar.

For clarification, a schematic drawing of the product is given.



- ① FERMACELL gypsum fiber board 12,5 mm
- ② FERMACELL screws
a ≤ 250 mm - 3,9 x ≥ 30 mm
- ③ Gap (Tapered Edge)
- ④ C-stud 75-06 ≤ 600 mm
- ⑤ U-stud 75-06
- ⑥ Mineralwool - A1, 60 mm,
melting point ≥ 1000°C, ≥ 30 kg/m³
- ⑦ perimeter insulation strip - A1

FERMACELL Construction 1 S 21

3. Test reports & test results in support of classification

3.1 Test reports

Name of Laboratory	Name of sponsor	Test reports Nos.	Test method
TNO Centre for Fire Research	Xella Droogbouw Systemen BV	2006-CVB-R0193	NEN-EN 1364-1:2001
“Materialprüfstalt für das Bauwesen” in Braunschweig	Xella Droogbouw Systemen BV	P-3854/1372-MPA BS	DIN 4102-2:1977-09

3.2 Test results

Test method & Test number	Parameter	Results
NEN-EN 1364-1:2001	Integrity	65 minutes
	cotton pad	Not reached
	gap gauges	Not reached
	sustained flaming	Not reached
	Insulation	Not reached
	average temperature rise	Not reached
maximum temperature rise	Not reached	
Radiation	Not reached	

The test was terminated after 67 minutes heating at the request of the sponsor.

4. Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with clause 7.5 of EN 13501-2:2004.

4.2 Classification

The element, **1S21** metal-stud wall, is classified according to the following combinations of performance parameters and classes as appropriate.

Fire resistance classification:

E 60

EW 60

EI 60

4.3 Field of application

This classification is only valid for wall constructions, which are the same in detail to the investigated construction, including materials and means of assembly used. Also the following conditions have to be met:

- a) The wall is insulated with mineral wool with a thickness of at least 60 mm, a density of at least 30 kg/m³ and a melting point greater than 1000 °C.
- b) Mounted in a supporting construction with a minimum density of 2000 kg/m³, a thickness of 250 mm and a floor of non-combustible material.
- c) the maximum height of the wall is limited to 3 m
- d) horizontal and vertical joints cross at a T-junction.
- e) the width of the wall construction has no limitations.

4.4 Extended application

4.4.1 Type of joints

The test was carried out using the Fermacell Tapered Edge joint. Based on test report "P-3854/1372-MPA BS", d.d. 2 May 2003 from "Materialprüfstalt für das Bauwesen" in Braunschweig, Germany, the following joints, to finish the joint between the vertical and horizontal gypsum fiber boards, are also applicable:

- Fermacell joint filler 5-7 mm joint;
- Fermacell butt joint;
- Fermacell jointstick, glue filled joint <1 mm.

5. Limitations

This classification document does not represent type approval or certification of the product.

SIGNED



Ing. M.N. Slappendel

APPROVED



Dr. Ir. G. v.d. Berg

TNO Built Environment and Geosciences

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Xella Droogbouw Systemen BV
Attn. Mr. W. Simons
P.O. Box 398
6600 AJ WIJCHEN
The Netherlands



Subject

Extended field of application 1S21

Dear Mr. Simons,

On 6 February 2006 TNO carried out a fire test on a Fermacell metal-stud wall construction, type 1S21. The results of this test are described in TNO report 2006-CVB-R0193.

You asked TNO to assess to following points:

- Increase of the c.t.c. distance of the mullions from 600 mm to 625 mm.
- Appliance of the result for another Fermacell wall construction, type 1S24

The assessment is as follows.

Mullions

Increase of the c.t.c. distance will have no influence on the thermal insulation, but only on the deflection of the wall. The result of the fire test described in above-mentioned TNO report was **65 minutes** based on the glowing of a cotton wool pad.

To the opinion of TNO, the marginal difference in the c.t.c. distance of the mullions will not have a substantial influence on the deflection which was causing the end of integrity. The fire resistance of the wall construction, type 1S21, with increased c.t.c. distance to 625 mm will be at least 60 minutes in the sense of NEN 6069:2005.

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Date

April 10, 2006

Our reference

2006-CVB-B0088/SLM/TNL

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Project number

034.67901/01.01

The Standard Conditions for Research Instructions given to TNO, as filed at the Registry of the District Court and the Chamber of Commerce in The Hague shall apply to all instructions given to TNO; the Standard Conditions will be sent on request.

Date
April 10, 2006

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Wall construction of type 1S24

Fermacell also delivers a wall construction similar to the one described in above-mentioned report, called 1S24. This wall construction consists of double mullions as shown in figure 1. The fire resistance of this wall construction will be at least 60 minutes under the condition that the mineral wool between the mullions is one of the following combinations:

- 0 mm on one side and 60 mm (density 30 kg/m³) on the other side or,
- 60 mm (density 30 kg/m³) on both sides.

Yours faithfully,

A handwritten signature in blue ink, consisting of several loops and a long horizontal stroke extending to the right.

M.N. Slappendel, B.Sc.
Centre for Fire Research

Date
April 10, 2006

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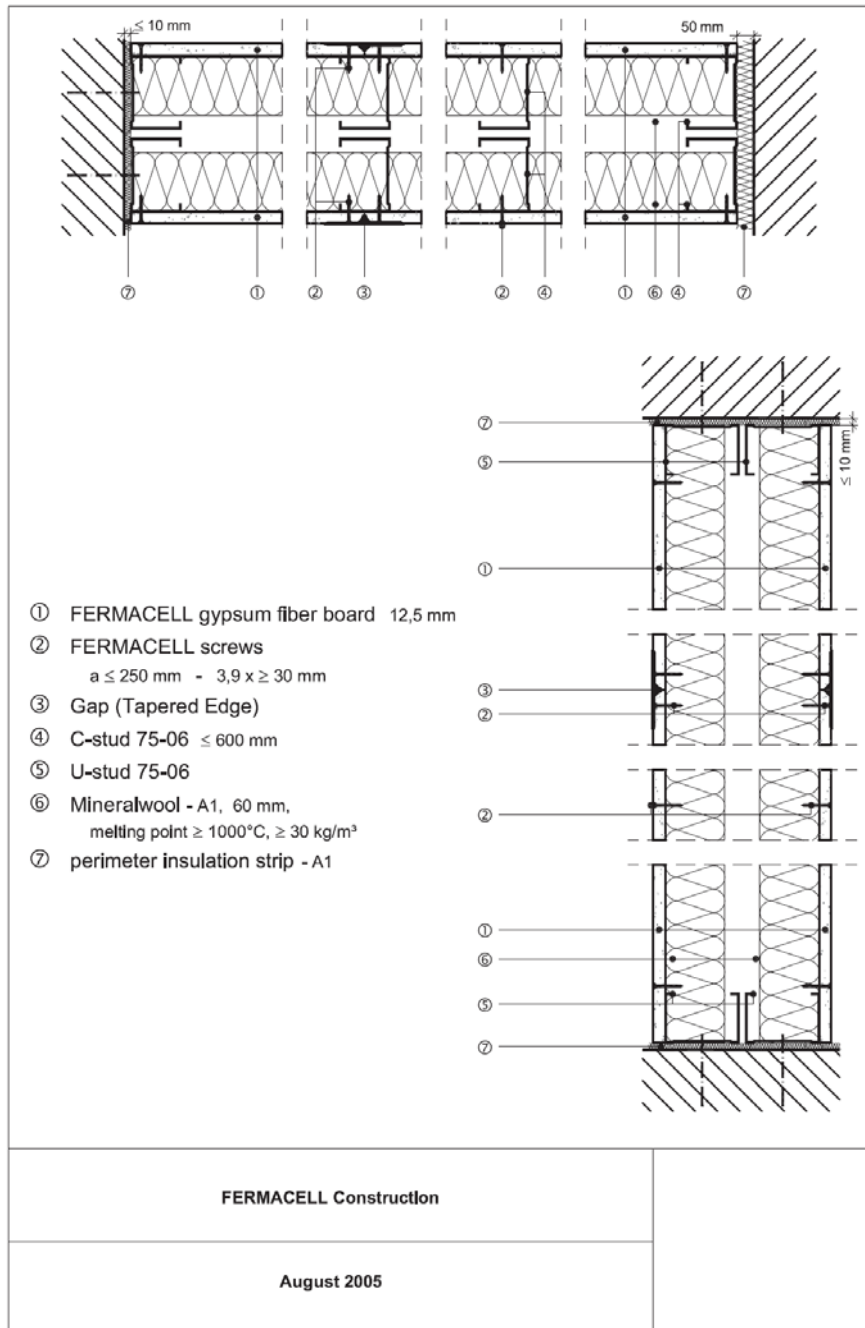


Figure 1: Cross-section overview of the 1S24 wall construction with 2 layers of mineral wool.